

is to be associated with the unit cell. The arrangement is thus a body-centered one (unless a complicated structure having at least eight chemical molecules in the unit cube is to be assumed).<sup>11</sup>

<i>hkl</i>	Estimated intensity	Calculated intensity for body-centered grouping
110(1)	10	43,000
100(2)	2	9,530
112(1)	7	23,700
110(2)	2	8,420
130(1)	3	12,800

Calculated density = 4.39.

Spacing:  $d_{100} = 4.30 \pm 0.01$  A. U.

Structure: Body-centered grouping. (Fig. 2).

### *Caesium iodide*

#### *One molecule in unit cell.*

<i>hkl</i>	Estimated intensity	Calculated intensity for body-centered grouping
110(1)	10	61,600
100(2)	2	13,710
112(1)	8	34,100
110(2)	1	12,100
130(1)	4	18,450

Calculated density = 4.54.

Spacing:  $d_{100} = 4.55 \pm 0.015$  A. U.

Structure: Body-centered grouping (Fig. 2).

Results of the determinations of the crystal structures of other alkali halides will be given in a subsequent number of this JOURNAL.

ORNITHOLOGY.—*Three new birds of the family Tinamidae from South America.*<sup>1</sup> ALEXANDER WETMORE, Biological Survey.

Study of tinamous in the United States National Museum of the genera *Rhynchotus*, *Nothura*, and *Calopezus*, has led to the identification of three forms that have been unrecognized hitherto. They may be known from the following detailed descriptions.

#### *Rhynchotus arcanus*, sp. nov.

*Characters*.—Similar to *Rhynchotus rufescens* (Temminck); outer webs of three outermost primaries, alula, and both webs of greater wing-coverts barred narrowly with blackish; more heavily barred with black above; bill slightly more slender at base.

*Description*.—Type, Cat. No. 21061, U. S. Nat. Mus., adult, sex not known, collected at Paraná, Entre Ríos, Argentina, March, 1860, by Capt. T. J. Page. Crown black, lateral feathers and those on fore part of crown margined narrowly with chamois, forming an indistinct median stripe on anterior third of crown, median feathers of hinder portion of crown margined with cinnamon; sides of head dull cream-buff, lighter on lores and below eyes, changing to chamois behind eyes; streak from eye through ear, ear coverts, and a narrow

<sup>11</sup> RALPH W. G. WYCKOFF and EUGEN POSNJAK, *op. cit.*

<sup>1</sup> Received October 3, 1921.

rectal streak dull black; hindneck tawny-olive, paler on sides of neck; base of hindneck becoming pale Saccardo's umber, barred with black; back, tertials, inner secondaries and rump, Saccardo's umber, barred heavily with black, the black bars margined distally with pinkish buff, tips of feathers pinkish buff; outer secondaries, wing-coverts, tail, and upper tail-coverts similar but with black markings greatly restricted so that they are less in area than the lighter colors, outer greater coverts with Saccardo's umber replaced by orange-cinnamon; alula and primaries hazel, outer webs of alula and of three outermost primaries barred narrowly with black, dark markings faintly indicated on outer webs of other primaries; tips of primaries becoming mouse gray, outer webs paling to cinnamon; secondaries hazel, barred across tips and on outer webs with black; chin and throat whitish (apparently discolored by stain); foreneck and upper breast tawny-olive, feathers of neck in front and on sides with dark streaks extending to ends of shafts, nearly concealed except on foreneck, broader basally and narrowed distally; rest of underparts drab, feathers of breast and lower sides of neck with indistinct markings of chamois; sides, flanks and under tail-coverts barred strongly with black, the black bars margined distally with pale olive-buff; abdomen and tibiae barred narrowly with black; under wing-coverts hazel; anterior margin of shoulder drab barred with black, with occasional lighter bars of pinkish buff. Maxilla dull black, becoming brownish at margins; mandible and maxilla below nostril honey yellow, darker at tip of mandible; tarsus and toes mikado brown, more or less discolored from grease (in dried skin).

*Measurements of type*.—Wing 188.5 mm., tail (from base of coccyx to tip of longest feather) 63 mm., exposed culmen 42 mm., tarsus 61.3 mm.

*Range*.—Known from Paraná in the Province of Entre Ríos, Argentina.

*Remarks*.—The bird described above as *Rhynchotus arcanus* is so distinct from any of the known forms of the rufous-winged tinamou, *R. rufescens* (Temminck), as to necessitate recognition as a full species. For some time I was under the impression that the strongly barred wing feathers in this individual might possibly represent the juvenal plumage of *rufescens*, but examination of a three-quarters-grown *Rhynchotus rufescens alleni* Chubb from Matto Grosso, borrowed from the American Museum of Natural History through the kindness of Dr. F. M. Chapman, shows that the immature bird agrees with the adult in plain, uniform flight feathers without prominent markings. The presence of dark lines on the foreneck and of squamate paler markings on the breast in *arcanus* suggest the condition found in *R. maculicollis* G. R. Gray, a species known from present published records from Bolivia (the type locality) and the Province of Tucumán, Argentina. It is possible that the bird from Paraná eventually may prove to be a pale eastern form of *maculicollis*.

***Nothura maculosa savannarum*, subsp. nov.**

*Characters*.—Similar to *Nothura maculosa nigroguttata* Salvadori but less mottled above, with black markings on dorsal surface much more extensive, covering the major part of the feathers of back and rump; hindneck paler, with finer streaks; markings on breast darker, confined to small heart-shaped spots or elongate marks toward tips of feathers; lateral bars on underparts bolder, not extending so far inward toward the median line.

*Description.*—Type, U. S. Nat. Mus., Cat. No. 283655 (Biological Survey Collection), adult female, collected near San Vicente, Department of Rocha, Uruguay, January 27, 1921, by Alexander Wetmore (collector's no. 5827). Crown black, the feathers tipped irregularly with cinnamon-buff, with poorly defined median stripe of cartridge buff and chamois; broad superciliary stripe and lores dull cream-buff, with slight admixture of whitish, the feathers bordering the crown lightly streaked with dull black; sides of head between cream-buff and chamois; auricular region dull black; feathers behind rictus streaked with black forming a distinct stripe; hindneck cream-buff with an admixture of cartridge buff, with median streak of black that becomes broader and heavier toward the back; back, rump and tertials black, the feathers bordered by lighter margins shading from chamois at the base through cream-buff to cartridge buff near the tip; each feather faintly and irregularly barred with dark chamois, these vermiculations greatly reduced in extent; upper tail-coverts barred and margined broadly with chamois; wing-coverts between chamois and honey yellow, tipped with cartridge buff and barred broadly with black; primaries and secondaries fuscous (paler through wear and fading at tips); outer primaries with outer webs barred regularly with cinnamon-buff at base, the light bars becoming white toward tip of feathers; both webs of inner primaries and secondaries barred broadly with cinnamon-buff; throat and lower margin of cheeks white; breast, abdomen, lower tail-coverts, flanks, and under wing-coverts between chamois and honey yellow, the tips of the feathers on breast and abdomen washed with olive-buff; upper breast with small heart-shaped spots of dull black, these becoming narrow and more linear on fore neck, and broader and heavier laterally; sides and flanks barred heavily with dull black; lower breast and abdomen immaculate; under tail-coverts marked indistinctly with fuscous; outer side of leg with vermiculations of dull black; extreme outer under wing-coverts barred with dull black. Maxilla slightly darker than natal brown, at base becoming benzo brown, mandible very dull pinkish buff, duller toward tip; tarsus and toes between fawn color and army brown (in dried skin).

*Measurements of type.*—Wing 139.5 mm., tail<sup>2</sup> 43 mm., exposed culmen 18 mm., tarsus 37.5 mm., middle toe with claw 35 mm.

*Geographic range.*—Eastern Uruguay (known from Department of Rocha).

*Remarks.*—This distinct form differs from typical *Nothura maculosa maculosa* (Temminck) from Paraguay in much paler, less brownish coloration, and in the characters assigned in the diagnosis as distinguishing *savannarum* from *N. m. nigroguttata*. It differs so markedly from other described forms of spotted tinamous that it requires no further comparison with any save *Nothura m. minor* (Spix) described from Tejuco (now called Diamantina), Minas Geraes, Brazil. This form, according to Hellmayr,<sup>3</sup> is related to *N. m. maculosa* but is smaller (wing 110 to 116 mm.), more chestnut above, and paler with darker more restricted spottings and streakings below. No specimens of this bird are available at present. In color of underparts *minor* is similar apparently to *savannarum*, but it differs in its smaller size and its much more rufescent color above. The form described here from eastern Uruguay is supposed to range through Rio Grande do Sul, Brazil.

<sup>2</sup> Measurement of the tail is taken from coccyx to tip of longest filaments of the mixed rectrices and tail coverts.

<sup>3</sup> Abh. Kön. Bayer. Akad. Wiss. II Kl. 22: 707. 1905.

***Calopezus elegans albidus*, subsp. nov.**

*Characters*.—Similar to *Calopezus elegans morenoi* Chubb but much paler white spots and broken bars of upper surface large, the light markings of the dorsal surface more extensive than the darker ones; feathers of lower hindneck marked extensively with dull ivory yellow; light markings on under surface more extensive.

*Description*.—Type, U. S. Nat. Mus., Cat. No. 71061, adult (sex not indicated), San Juan, Argentina. Feathers of crown and nape light drab, each feather with a narrow median streak of dull black; loreal region dull pinkish buff, each feather streaked with dull black; superciliary streak paler than, cartridge buff; a narrow line extending beneath eye from base of nasal groove dull pinkish buff, becoming whiter as it expands on the cheeks where it is lined with dull black; malar streak dull black, the feathers bordered with whitish; sides of head dull black, the feathers bordered narrowly with light drab; elongate crest, composed of slender feathers slightly recurved at tip, dull black, bordered narrowly toward base with light drab; hindneck between smoke gray and light grayish olive, slightly streaked with black; feathers of lower neck and upper back dull ivory-yellow, with shaft streak and five or more narrow bars of fuscous-black, the dark bars more or less broken and interrupted; feathers of back, inner wing-coverts and tertials mottled and barred with mixed ivory-yellow and fuscous-black, with an admixture of drab replacing part of the lighter markings; rump and upper tail-coverts similar to back but with bars of light and dark heavier and more distinct, the light markings varying from ivory-yellow to nearly white; outer wing-coverts barred irregularly but heavily with ivory-yellow and fuscous-black, the light markings in places almost white; primaries and secondaries dull fuscous-black; outer webs of primaries barred narrowly with ivory-yellow, an indefinite broken bar of the same color on inner web; secondaries crossed with irregular bars of ivory-yellow; rectrices barred narrowly with fuscous-black and ivory-yellow; throat dull white; foreneck and upper breast dull ivory-yellow, each feather with shaft streak and several faint wavy vermiculations of fuscous-black; breast, abdomen, sides, flanks and under tail-coverts ivory-yellow barred broadly with fuscous-black; abdomen ivory yellow, the abdomen tending to become immaculate toward center; thighs pale ivory-yellow; under wing-coverts and axillars dull white, barred with fuscous-black.

*Measurements of type*.—Wing 211 mm., tail 97.5 mm., tarsus 40.6 mm., culmen 25 mm.

*Range*.—Province of San Juan, Argentina.

*Remarks*.—The pale coloration of *Calopezus e. albidus* distinguishes it at a glance from other subspecies of the crested tinamou. It is as distinct from *C. e. formosus* Lillo of eastern Tucumán and northwestern Santiago del Estero, as from *C. e. morenoi* which ranges north into the Province of Mendoza. The peculiarities of this pale form were described to me by sportsmen who were familiar with it in the field, and who distinguished it from the darker subspecies of other regions. The type, an old specimen in the U. S. National Museum, has no definite locality assigned on the label other than the Province of San Juan, but it seems probable that *albidus* ranges through the plains of eastern San Juan.